

Date: Monday, 6/2/2008 8:53:12 AM
User: Chantal Lavoie

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	ROUND BILLET 17-4
Job Number :	39626	Part Number :	D6104005
Estimate Number :	10040	Drawing Number :	D6104 REV B
P.O. Number :		Project Number :	N/A
This Issue :	6/2/2008	Drawing Revision :	B
Prsht Rev. :	NC	Material :	
First Issue :	1/1	Due Date :	6/12/2008
Previous Run :	38688	Qty:	20
Written By :		Um:	Each
Checked & Approved By :	JW 08.6.07		
Comment :	Est. A: 01.05.08 New Issue EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	PG	PURCHASING
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Comment: PURCHASING

Issue P/O: 6503

C208/06/05 (20)

a) Description: S.S round billet

b) Ø4.00" x 5.10" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

e) One blank makes 2 parts

f) Material certification required

2.0	D6104005P	17-4 SS Roundbar 4.00"OD
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 20.0000 Each(s)

17-4 SS Roundbar 4.00"OD

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

C 8/4/18 (20)

4.0	QC6	DIMENSIONAL CHECK
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Comment: DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

C 08/6/18

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 6/2/2008 8:53:12 AM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: ROUND BILLET 17-4

Job Number: 39626

Part Number: D6104005

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: CNC

mf 08-07-23

6.0

QC21

FINAL INSPECTION/W/O RELEASE



08/07/23

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



mf 08-07-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

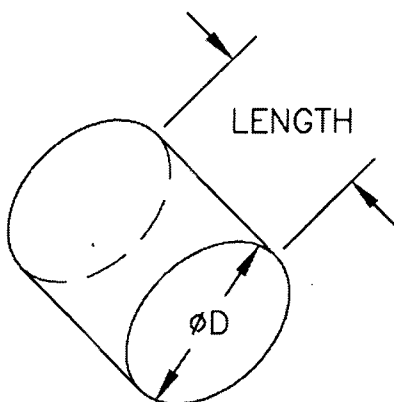


DESIGN E4	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4 SCALE NTS	
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29

SPECIFICATION CONTROL DRAWING



Wb 39626

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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REQUISITION CLIENT-CUSTOMER REQUISITION NO.		NO. COM. CLIENT-CUST. ORD. NO.		COMPT. ACCT.	VEND. SLS	TERR	EXPEDIE PAR SHIP VIA		
RETEUR-PURCHASING AGENT LINDA LACELLE		TELEPHONE 613 632 3336	H/C	TAXE	NO. COM ORD	REGION LIVRAISON-DEL ZONE	F.A.B. F.O.B.	BILL	NO. FEVILLE/EMBALLAGE-B/L NUMBER
RE A-SHIP TO:		VENDU A-SOLD TO: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY ON K6A 1K7				INFORMATION CRÉDIT-CREDIT INFORMATION			ROUTE 10-NL-06/1 30-NL-06/1 31-NL-06/1
INSTRUCTIONS LIVRAISON-DELIVERY IND-L72900		INSTRUCTIONS LIVRAISON (CONT.)-DELIVERY (CONT'D.)				INSTRUCTIONS LIVRAISON (CONT.)-DELIVERY (CONT'D.)			
DESCRIPTION - ITEM 1 RD 17CR-4NI RT SOL. TREATED COND A 5.10"		GOLD				QTE/UNITE COM. ORDERED 20 PCS		PCES/COM ORD	POIDS COM. -WT. ORDERED 375
CERTIFICATE OF CONFORMANCE A.M. Castle & Co. certifies that the material(s) supplied under this document will meet and conform to the specifications of the product(s) described hereon. A.M. Castle & Co. (Canada) Inc.		INSTRUCTIONS TOL 1/8" - 0 PRIOR DIST/ORD: 10 484304		COULÉE INFO-HEAT INFO QTE-QTY 614325		BALLOTS-BUNDLES 1		PCES/PD EXP. SHP. 20	POIDS EXP.-WT. SHIPPED 375
WEIGHT FOR SHIPPING PURPOSES ONLY. SEE INVOICES FOR ACCURATE BILLING WEIGHT. PLEASE SIGN AND DATE DRIVER'S COPY FOR RECEIPT OF MATERIAL AND, IF CHECKED, TEST REPORTS.				INSTRUCTIONS (CONT'D.) 20x5.10"		FORME-SHAPE 44 x 10 / 101-1		I.A.C. 42464	ENT.-WH
DESCRIPTION - ITEM 2						QTE/UNITE COM. ORDERED		PCES/COM ORD	POIDS COM. -WT. ORDERED
TERMS AND CONDITIONS OF SALE SEE DISCLAIMERS AND LIMITATIONS ON THE REVERSE SIDE		INSTRUCTIONS 1 Skid w/ 567759		COULÉE INFO-HEAT INFO QTE-QTY		BALLOTS-BUNDLES		PCES/PD EXP. SHP.	POIDS EXP.-WT. SHIPPED
				INSTRUCTIONS (CONT'D.)		FORME-SHAPE		I.A.C.	ENT.-WH
DESCRIPTION - ITEM 3						QTE/UNITE COM. ORDERED		PCES/COM ORD	POIDS COM. -WT. ORDERED
ALL EXCEPTIONS FOR SHORTAGE OR DAMAGE MUST BE NOTED ON THE DRIVER COPY & CUSTOMER COPY OF THE DELIVERY RECEIPTS & SIGNED BY THE DRIVER & CUSTOMER. COPY OF SUCH RECEIPT PROPERLY NOTED MUST BE SUBMITTED WITHIN 10 DAYS WHEN CREDIT IS REQUESTED.		INSTRUCTIONS		COULÉE INFO-HEAT INFO QTE-QTY		BALLOTS-BUNDLES		PCES/PD EXP. SHP.	POIDS EXP.-WT. SHIPPED
NOM (LETTRE MOULEE)-NAME (PRINT ONLY)				INSTRUCTIONS (CONT'D.)		FORME-SHAPE		I.A.C.	ENT.-WH
RECU PAR-RECEIVED BY		DATE RECU-DATE RECEIVED							

FEVILLE D'EMBALLAGE - PACKING SLIP

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000646714



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
205 Talley Metals Lane
McBee, SC. 29101 Tel: (610) 208-2000 (800) 338-4592

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05/19/08

CUSTOMER / BESTELLER / CLIENT

SELLER / VERKAUFER / VENDEUR PAGE 1 OF 2

A.M. CASTLE & CO

3400 N WOLF RD
FRANKLIN PARK IL 60131

HVL

CUSTOMER ORDER NO. / BESTELL.-NR. / N° DE COMMANDE	CARPENTER NO. / MERKS.-NR. / N° DE REFERENCE INTERNE	DATE / DATUM / DATE	WEIGHT / GEWICHT / POIDS
10-38146-01	W90660	05/19/08	4835.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: G14325

PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED
PART NUMBER: IAC 42464

SPECIFICATION: CASTLE 3174-02 CAP OF COND. H900 REV 26 (07/15/05)
AMS 2303 REV E (10/ /01)
AMS 5643 REV R (02/ /08) (EXCEPT HOT ROLLED OR FORGED & ROUGH
TURNED)
ASTM-A564-04 TYPE 630
ASME-SA564 2007 EDITION AISI 630 UNS S17400

SIZE 4.000000 IN. (101.60 MM) RD BAR

PRIMARY HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)	MN (XRF)	SI (XRF)	P (XRF)	S (COM)	CR (XRF)
0.04	0.87	0.31	0.028	0.028	15.35
NI (XRF)	MO (XRF)	CU (XRF)	N (FUS)	CB (XRF)	TA (XRF)
4.28	0.29	3.75	0.030	0.26	LT .01
CB+TA					
0.27					

THIS HEAT MELTED BY THE ARC/AOD PROCESSES

NO WELD REPAIR.

MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE CONTAMINATION.

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HBW 355 (MIDRADIUS)

MAGNETIC PARTICLES FREQUENCY = 0 / SEVERITY = 0

MICROSTRUCTURE - FERRITE 2.05%

SOLUTION ANNEALED - 1900 F, 1 HOUR - RAPID COOL

CASTLE METALS CORP.
DATE RCVD 5/21/08
IAC 42464
APPROVED BY

CONTINUED ON NEXT PAGE

This certification is made to the customer printed on this form. Carpenter neither makes, nor assumes responsibility for, any representation or certification to other parties.
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CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000646714



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.

205 Talley Metals Lane

McBee, SC. 29101 Tel: (610) 208-2000 (800) 338-4592

05/19/08

CUSTOMER/BESTELLER/CLIENT

A.M. CASTLE & CO

3400 N WOLF RD

FRANKLIN PARK IL 60131

SELLER/VERKÄUFER/VENDEURPAGE 2 OF 2

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
10-38146-01	W90660	05/19/08	4835.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULÉE:

G14325

CAPABILITY

900 F (482 C), 01 HR

AIR COOL

YIELD STRENGTH, (0.20 %) KSI (MPA)

178.0 (1227)

TENSILE STRENGTH, KSI (MPA)

204.0 (1407)

ELONGATION IN 2.00", %

15.0

REDUCTION OF AREA, %

48.0

HARDNESS, HBW

404.0

(CONVERTED FROM TENSILE STRENGTH)

NO WELD REPAIR PERFORMED

MATERIAL PRODUCED ON THIS ORDER WAS MELTED AND MANUFACTURED IN THE U.S.A. MATERIAL HAS BEEN MELTED IN USA OR QUALIFYING COUNTRY TO DFARS REQUIREMENTS 252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1. WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS. CERTIFICATE OF TEST IS PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1B OF EN 10204 (DIN50049)

STEPHANIE E. MCCULLUM

QUALITY ASSURANCE ENGINEER

CARPENTER TECHNOLOGY CORPORATION

Stephanie E. McCullum